

WHAT IS CLAIMED IS:

1. A capillary optic produced by impression comprising the steps of:
providing a mold having an external profile figured for radiation transmission
along an axis;
providing at least one soft plate,
impressing the mold into the soft plate;
removing the mold from the soft plate to leave a vacant impression figured for
radiation transmission in the soft plate along the axis, and
enclosing the impression to provide for radiation transmission along the axis
of the impression.

2. The capillary optic produced by impression according to claim 1 and
wherein:
the enclosing step includes:
etching the mold out of a soft plate.

3. The capillary optic produced by impression according to claim 1
wherein:
two soft plates are used on either side of the mold.

4. The capillary optic produced by impression according to claim 1 and
wherein:
the enclosing step includes placing a cover plate is over the vacant impression.

5. The capillary optic produced by impression according to claim 1 and
wherein:
the mold is a wire.

6. The capillary optic produced by impression according to claim 5 and
wherein:
the wire is produced by an differential etching process.

7. The capillary optic produced by impression according to claim 1 and
wherein:
providing two plates of identical materials; and,

4 the impressing step provides symmetrical imprints.

1 8. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 providing two plates of different materials; and
4 the impressing step provides asymmetrical imprints.

1 9. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the impressing step includes the use of rollers.

1 10. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the mold having an external profile figured for radiation transmission is a
4 paraboloid.

1 11. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the mold having an external profile figured for radiation transmission is an
4 ellipsoid.

1 12. The capillary optic produced by impression according to claim 1 and
2 including the additional step of placing a reflection enhancing film on the impression before
3 enclosing the optic.

1 13. The capillary optic produced by impression according to claim 11
2 wherein the reflection enhancing film is a multi-layer coating.

1 14. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with an x-ray tube.

1 15. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with synchrotron radiation.

1 16. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with an electron microprobe instrument.

1 17. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with light chosen from the group including visible, ultraviolet, or
3 infrared light.

1 18. The capillary optic produced by impression according to claim 17
2 wherein the light originates from optical fibers.

1 19. The capillary optic produced by impression according to claim 17
2 wherein the light originates from lasers.

1 20. The capillary optic produced by impression according to claim 1
2 wherein the mold includes more than one wire.

1 21. An optical connector including:
2 at least one soft plate,
3 an impression into the soft plate having an external profile figured for
4 radiation transmission along an axis; and,
5 an enclosure over the impression to provide for radiation transmission along
6 the axis of the impression.

1 22. A process of connecting optical fibers comprising the steps of:
2 providing at least one soft plate;
3 placing an impression into the soft plate having an external profile figured for
4 radiation transmission along an axis;
5 placing at least one optical fiber into the external profile; and,
6 enclosing the optical fiber and external profile to permit radiation to travel
7 between the optical fiber and the impression.

1 23. The process of connecting optical fibers according to claim 20 and
2 wherein:
3 placing at least two optical fibers into the external profile from opposite ends
4 of the external profile.

1 24. The process of connecting optical fibers according to claim 22 and
2 wherein:

3 more than one impression is placed into the soft plate having an external
4 profile figured for radiation transmission along an axis.

1 25. The capillary optic produced by impression according to claim 1
2 wherein the optical coating is placed before the pressing step.

1 26. The capillary optic produced by impression according to claim 1
2 wherein:
3 the plate has curvature.

1 27. The capillary optic produced by impression according to claim 1
2 wherein:
3 the plate includes a groove to position the mold.